

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A color correction apparatus comprising:

a color corrector that makes a color correction to an input image signal; and

a color gamut compressor that performs color gamut compression on the color-corrected input image signal based on data describing color reproduction characteristics so that the color-corrected image data outputted from said color corrector has a chromaticity range which is contained in a color reproduction region which is based on said color reproduction characteristics wherein:

said color gamut compressor determines a hue of the image data converted by said color corrector, acquires both:

an input chromaticity range from the input image signal based on the data describing the color reproduction characteristics, said input chromaticity range indicating said color reproduction characteristics corresponding to a hue of the input image signal, and

an output chromaticity range based on the data describing the color reproduction characteristics, said output range indicating said color reproduction characteristics corresponding to the hue of the image data converted by said color corrector ~~based on the data describing the color reproduction characteristics.~~

2. (Previously Presented) The color correction apparatus according to Claim 1, wherein said color corrector is provided with a color reproduction corrector that converts a chromaticity range of the input image signal based on the data describing the color reproduction characteristics.

3. (Previously Presented) The color correction apparatus according to Claim 1, wherein said color corrector is provided with a hue converter that converts a hue of the input image signal based on data describing the hue to be converted and an amount of adjustment.

4. (Previously Presented) The color correction apparatus according to Claim 1, wherein said color gamut compressor performs the color gamut compression on the color-corrected input image signal based on data describing color reproduction characteristics of a color image display apparatus.

5. (Currently Amended) The color correction apparatus according to Claim 1, wherein said color gamut compressor

determines a convergence point from both a color reproduction region defined by the input chromaticity range ~~indicating said color reproduction characteristics corresponding to the hue of said input image signal~~, and a color reproduction region defined by the output chromaticity range ~~indicating said color reproduction characteristics corresponding to the hue of the image data converted by said color corrector~~, and

performs the color gamut compression on the color-corrected image data outputted from said color corrector in a direction of said convergence point.

6. (Currently Amended) The color correction apparatus according to Claim 5, wherein said color gamut compressor

acquires the input chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of the input image signal~~ and the output chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of the image data converted by said color corrector~~, when the color reproduction region defined by the input chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of said input image signal~~ and the color reproduction region defined by the output chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of said converted image data~~ are expressed in a color space,

determines a point of intersection where the color reproduction region for the hue of said input image signal and the color reproduction region for the hue of said converted image data intersect in a plane showing value and saturation,

determines a convergence point having a value equal to that of said point of intersection

and being on a value axis showing said color space, and

compresses the color reproduction region for the hue of said input image signal toward said convergence point.

7. (Currently Amended) The color correction apparatus according to Claim 5, wherein said color gamut compressor

acquires the input chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of the input image signal and the~~ output chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of the image data converted by said color corrector, when the color reproduction region defined by the~~ input chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of said input image signal and the color reproduction region defined by the~~ output chromaticity range ~~indicating the color reproduction characteristics corresponding to the hue of said converted image data are~~ expressed in a color space,

determines a point of intersection where the color reproduction region for the hue of said input image signal and the color reproduction region for the hue of said converted image data intersect in a plane showing value and saturation,

defines an arbitrary point on a straight line connecting said point of intersection with the output chromaticity range ~~indicating the color reproduction characteristics of the hue indicated by said converted image data,~~

determines a convergence point having a value equal to that of said arbitrary point and being on a value axis showing said color space, and

compresses the color reproduction region for the hue of said input image signal toward said convergence point.

8. (Currently Amended) The color correction apparatus according to Claim 1, wherein said color gamut compressor

acquires a second input chromaticity range indicating first color reproduction characteristics of a hue of the input image signal based on data indicating the first color reproduction characteristics and describing color reproduction characteristics of a color image display apparatus,

acquires a second output chromaticity range indicating second color reproduction characteristics data of a hue indicated by the image data converted by said color corrector based on data indicating the second color reproduction characteristics and describing color reproduction characteristics of an original image showing a color tone of a visually-identified image,

acquires a convergence point from both a color reproduction region defined by the second input chromaticity range ~~indicating the first color reproduction characteristics of the hue of said input image signal~~, and a color reproduction region defined by the second output chromaticity range ~~indicating the second color reproduction characteristics data of the hue indicated by said corrected image data~~, and

compresses the color reproduction region defined by the second input chromaticity range ~~indicating the first color reproduction characteristics of the hue of said input image signal~~ toward the convergence point.

9. (Currently Amended) The color correction apparatus according to Claim 1, wherein

said color corrector acquires color adjustment data describing both a hue to be value-converted and an amount of adjustment for value, and has a value converter that converts a value indicated by the input image signal based on said color adjustment data, and

said color gamut compressor

acquires a third input chromaticity range indicating color reproduction characteristics of a hue of the input image signal based on the data describing the color reproduction characteristics,

acquires a value-converted chromaticity range with reference to a look-up table

in which a hue value-converted by said value converter is described,

acquires a convergence point from both a color reproduction region defined by the third input chromaticity range ~~indicating the color reproduction characteristics of the hue of said input image signal~~ and a color reproduction region defined by said value-converted chromaticity range, and

compresses the color reproduction region defined by the third input chromaticity range ~~indicating the color reproduction characteristics of the hue of said input image signal~~ toward the convergence point.

10. (Previously Presented) The color correction apparatus according to Claim 9, wherein said value converter determines both a value of a hue selected by a user and a value of a hue in a vicinity of the selected hue using a value look-up table in which a value-converted value is described.

11. (Currently Amended) The color correction apparatus according to Claim 9, wherein

said color corrector is provided with a chromaticity range converter that transforms a value axis indicating a color space, and

said color gamut compressor acquires a convergence point on the value axis which is converted by said chromaticity range converter from both the color reproduction region defined by the third input chromaticity range ~~indicating the color reproduction characteristics of the hue of the input image signal~~ expressed in said color space and the color reproduction region defined by the value-converted chromaticity range.

12. (Original) A color correction apparatus comprising: a saturation conversion means for converting a saturation of an input image signal based on both color adjustment data describing both a hue to be saturation-converted and an amount of adjustment, and color reproduction characteristics data describing color reproduction characteristics of a color image display apparatus.

13. (Currently Amended) A color correction method comprising:

- converting a hue indicated by image data using a hue converter;
- converting a value indicated by the image data acquired from said hue converter using a value converter;

- converting a saturation indicated by the image data acquired from said value converter based on color reproduction characteristics data describing color reproduction characteristics of a color image display apparatus using a saturation converter; and

- carrying out color gamut compression so that the image data acquired from said saturation converter has a chromaticity range which is contained in a color reproduction region which is based on said color reproduction characteristics using a color gamut compressor wherein said color gamut compressor determines a hue of the image data converted by said color corrector, acquires both;

- an input chromaticity range from the image data based on the data describing the color reproduction characteristics, said input chromaticity range indicating said color reproduction characteristics corresponding to a hue of the input image signal, and

- an output chromaticity range based on the data describing the color reproduction characteristics, said output range indicating said color reproduction characteristics corresponding to the hue of the image data converted by said color corrector ~~based on the data describing the color reproduction characteristics.~~

14. (New) A color correction apparatus comprising:

- a color corrector that color-corrects an input image signal; and

- a color gamut compressor that:

- input acquires an input chromaticity range from the input image signal based on data describing color reproduction characteristics, said input chromaticity range indicating said color reproduction characteristics corresponding to a hue of the input image signal;

- determines a hue of the color-corrected image signal;

- output acquires an output chromaticity range based on the data describing the color

reproduction characteristics, said output chromaticity range indicating those color reproduction characteristics that correspond to the determined hue of the color-corrected image signal; and

compresses a color gamut of the color-corrected image signal based on the data describing the color reproduction characteristics, thereby establishing a chromaticity range for the gamut-compressed image signal such that said chromaticity range is contained in a color reproduction region based on said color reproduction characteristics.

15. (New) The color correction apparatus according to Claim 14, where said color corrector includes a color reproduction corrector that converts the input chromaticity range based on the data describing the color reproduction characteristics.

16. (New) The color correction apparatus according to Claim 14, where said color corrector includes a hue converter that converts a hue of the input image signal based on data describing the hue to be converted and an amount of adjustment.

17. (New) The color correction apparatus according to Claim 14, where the data describing the color reproduction characteristics includes data describing color reproduction characteristics of a color image display apparatus.

18. (New) The color correction apparatus according to Claim 14, where said color gamut compressor determines a convergence point from both a color reproduction region defined by the input chromaticity range, and a color reproduction region defined by the output chromaticity range, and

compresses the color gamut of the color-corrected image data in a direction of said convergence point.

19. (New) The color correction apparatus according to Claim 18, where said color gamut compressor:

acquires the input and output chromaticity ranges when the color reproduction regions defined by the input and output chromaticity ranges are expressed in a color space,

determines a point of intersection where the color reproduction region for the hue of said input image signal and the color reproduction region for the hue of said color-corrected image signal intersect in a plane showing value and saturation,

determines a convergence point having a value equal to that of said point of intersection and being on a value axis showing said color space, and

compresses the color reproduction region for the hue of said input image signal toward said convergence point.

20. (New) The color correction apparatus according to Claim 18, where said color gamut compressor

acquires the input chromaticity range and the output chromaticity range when the color reproduction region defined by the input chromaticity range and the color reproduction region defined by the output chromaticity range are expressed in a color space,

determines a point of intersection where the color reproduction region for the hue of said input image signal and the color reproduction region for the hue of said color-corrected image signal to intersect in a plane showing value and saturation,

defines an arbitrary point on a straight line connecting said point of intersection with the output chromaticity range,

determines a convergence point having a value equal to that of said arbitrary point and being on a value axis showing said color space, and

compresses the color reproduction region for the hue of said input image signal toward said convergence point.

21. (New) The color correction apparatus according to Claim 14, where said color gamut compressor:

acquires a second input chromaticity range indicating first color reproduction characteristics of a hue of the input image signal based on data indicating the first color reproduction characteristics and describing color reproduction characteristics of a color image display apparatus,

acquires a second output chromaticity range indicating second color reproduction characteristics data of a hue indicated by the color-corrected image signal based on data indicating the second color reproduction characteristics and describing color reproduction characteristics of an original image showing a color tone of a visually-identified image,

acquires a convergence point from both a color reproduction region defined by the second input chromaticity range, and a color reproduction region defined by the second output chromaticity range, and

compresses the color reproduction region defined by the second input chromaticity range toward the convergence point.

22. (New) The color correction apparatus according to Claim 14, where:

said color corrector acquires color adjustment data describing both a hue to be value-converted and an amount of adjustment for value, and has a value converter that converts a value indicated by the input image signal based on said color adjustment data, and

said color gamut compressor

acquires a third input chromaticity range indicating color reproduction characteristics of a hue of the input image signal based on the data describing the color reproduction characteristics,

acquires a value-converted chromaticity range with reference to a look-up table in which a hue value-converted by said value converter is described,

acquires a convergence point from both a color reproduction region defined by the third input chromaticity range and a color reproduction region defined by said value-converted chromaticity range, and

compresses the color reproduction region defined by the third input chromaticity range toward the convergence point.

23. (New) The color correction apparatus according to Claim 22, wherein said value converter determines both a value of a hue selected by a user and a value of a hue in a vicinity of the selected hue using a value look-up table in which a value-converted value is described.

24. (New) The color correction apparatus according to Claim 22, wherein

said color corrector includes a chromaticity range converter that transforms a value axis indicating a color space, and

said color gamut compressor acquires a convergence point on the transformed value axis from both the color reproduction region defined by the third input chromaticity range expressed in said color space and the color reproduction region defined by the value-converted chromaticity range.

25. (New) A color correction apparatus comprising:

a saturation converter that converts a saturation of an input image signal based on color adjustment data describing both a hue to be saturation-converted and an amount of adjustment, and color reproduction characteristics data describing color reproduction characteristics of a color image display apparatus.

26. (New) A color correction method comprising:

converting a hue indicated by image data;

converting a value indicated by the hue-converted image data;

converting a saturation indicated by the value-converted image data based on color reproduction characteristics data describing color reproduction characteristics of a color image display apparatus; and

compressing a color gamut of the image data such that the saturation-converted image data has a chromaticity range within a color reproduction region based on said color reproduction characteristics, where compressing a color gamut includes:

determining a hue of the hue-converted image data

first acquiring an input chromaticity range from the image data based on the data describing the color reproduction characteristics, said input chromaticity range indicating said color reproduction characteristics corresponding to a hue of the image data, and

second acquiring an output chromaticity range based on the data describing the color reproduction characteristics, said output range indicating said color reproduction characteristics corresponding to the hue of the hue-converted image data.